

AMD RADEON™ PRORENDER

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RADEON PRORENDER

- **ProRender core SDK (1.35.x)**
 - For developers
 - Open access at <https://www.amd.com/en/technologies/radeon-prorender-developers>
 - Support Windows 10, macOS (10.14+), Linux
- **ProRender integrations**
 - Cinema 4D, Modo®, ACCA® Edificius, SOLIDWORKS Visualize, InstaLOD
- **ProRender plugins**
 - Blender™, 3ds Max®, Maya®, USD render delegate, Unreal engine, PTC Creo
- **ProRender network rendering**
 - Bullet Render Farm by A.L.I. technologies, Render Pool by Morgenrot



AMD
RADEON
ProRender

Rendering for Everyone
Fast and Easy Implementation

Thinking about adding physically-based rendering to your application's workflow? AMD Radeon™ ProRender delivers stunningly photorealistic images and supports hybrid rendering, enabling incredibly fast render times for viewport preview rendering. It is built on industry-standard OpenCL™ and Apple® Metal® 2 software technology, making it hardware agnostic so it runs on virtually any OS and virtually

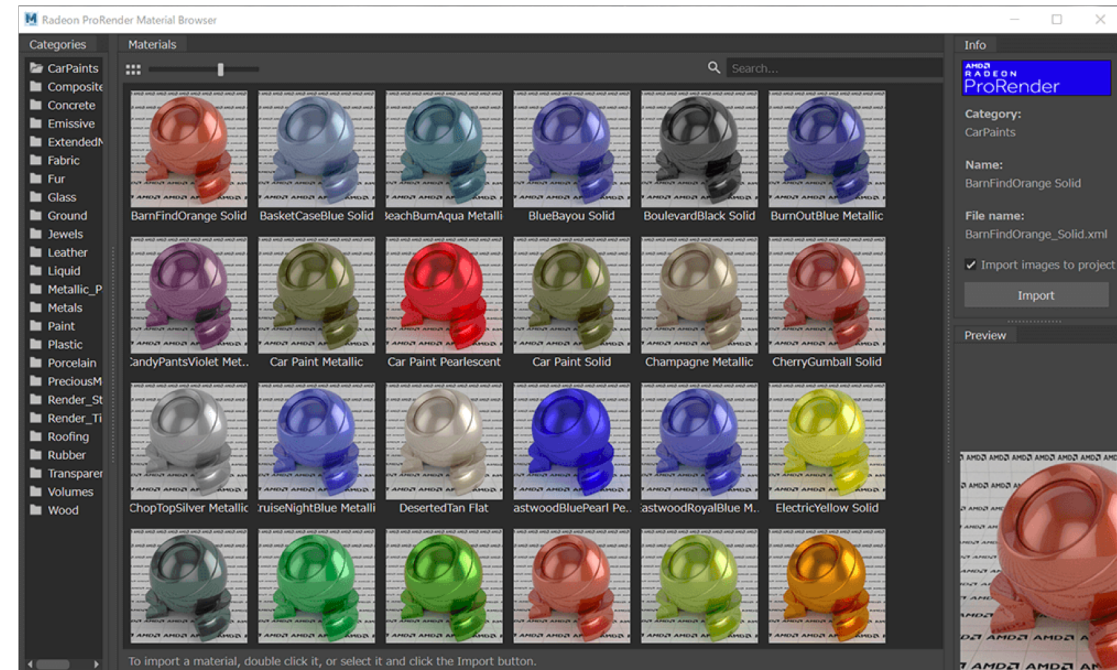
RADEON PRORENDER

- Hardware accelerated physically based global illumination renderer
- Real time IPR rendering
- Runs on many devices
 - Multi platform (Win, Linux, macOS)
 - Heterogenous multi GPU support
 - **Best experience on AMD GPUs**



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- Easy to use
 - ProRender Uber material
 - Material library



Maya Material library

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 - Out of core texture support (on any GPU)
 - Out of core geometry support
(limited, only on Radeon Vega GPUs using HBCC)



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- AI denoiser & upsampler (Radeon Image Filter Library)



AI denoiser example

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- Machine learning based denoiser (Radeon Image Library)
- Adaptable to provide GPU mode for most renderers
 - Plugins includes converter for Arnold, V-Ray, Redshift



Arnold



RPR

RADEON PRORENDER 2.0

RADEON PRORENDER 2.0

- Motivations
 - We received quite a lot of feedbacks from users
 - Some requests need fundamental change for the code base
- Radeon ProRender 2.0 development

RADEON PRORENDER 2.0

Layered Material Convergence comparison

- Complete rewrite of the engine
- API compatible to RPR1
 - Existing RPR integration works out of the box
 - APIs are added to use the power of RPR2.0
- 4 major improvements
 - Convergence
 - Flexibility
 - Memory
 - Performance
- A beta version is released at May 2020



RADEON PRORENDER 2.0

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Many light convergence comparison
(created by Yosuke Nakano)



RADEON PRORENDER 2.0

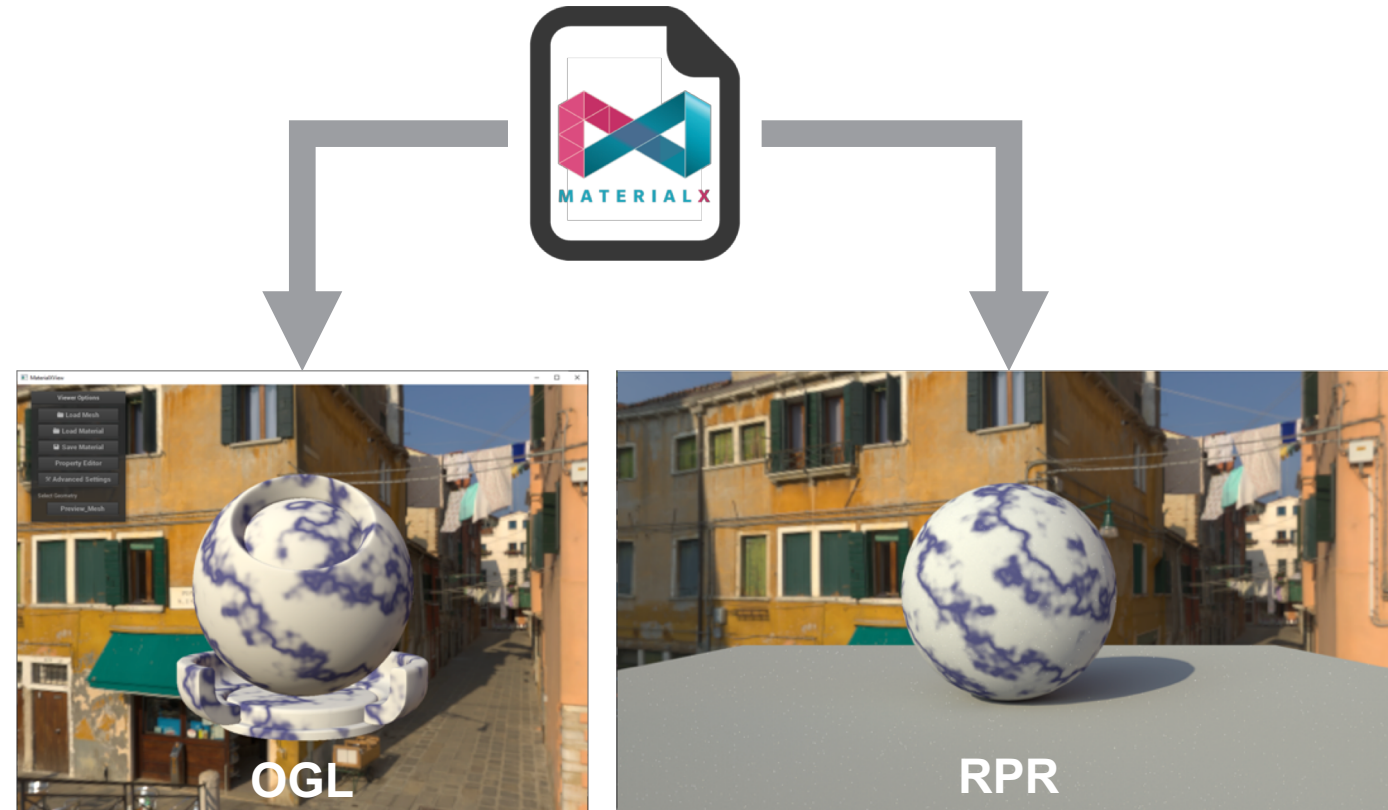
FLEXIBILITY

- RPR has a flexible shading system
- RPR 2.0 extends it
- New procedural texture node
 - User can pass C code
 - Use it in material graph



RADEON PRORENDER 2.0 FLEXIBILITY

- MaterialX support
 - An open standard for material graph transfer between applications (<https://www.materialx.org/>)
- If you have your scene materials exported in MaterialX, RPR2.0 can render it



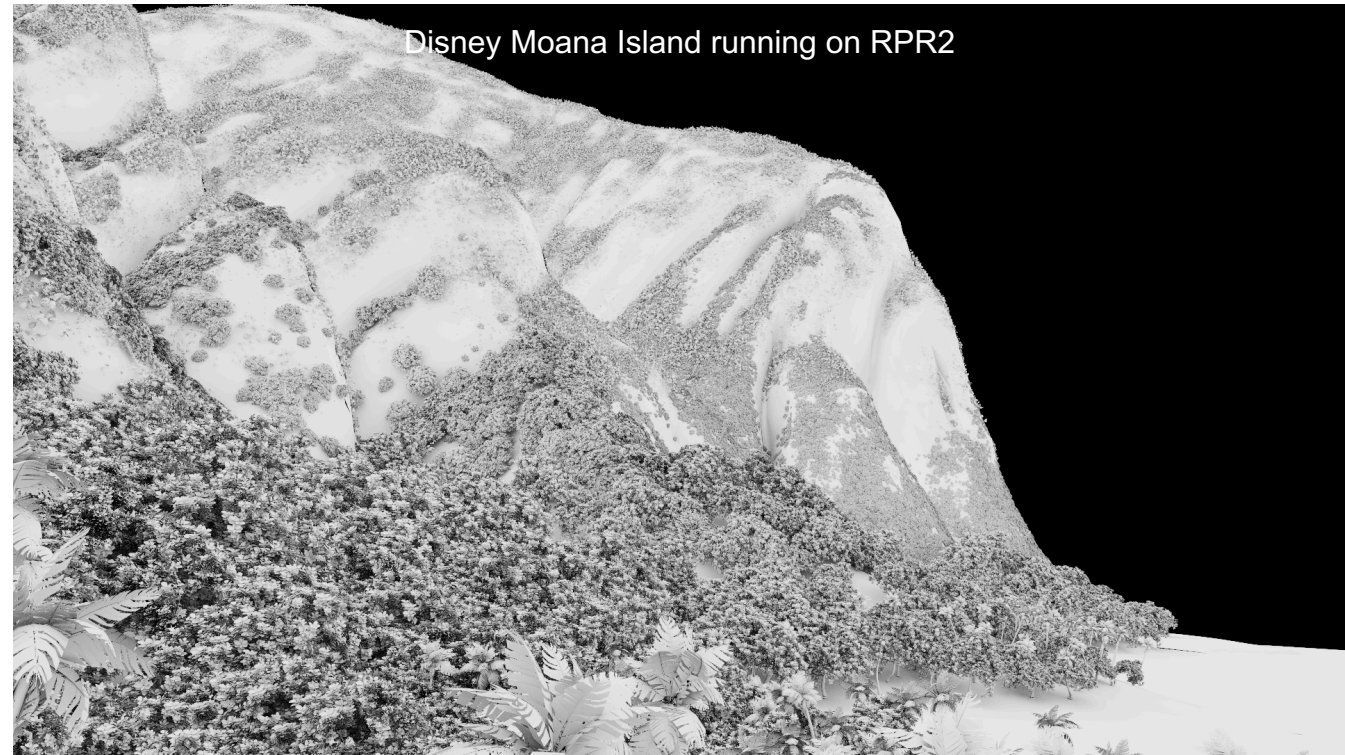
RADEON PRORENDER 2.0 MEMORY

- RPR1.x uses large memory for internal state
- RPR2.0 uses less memory
 - Reduction on internal state buffers
 - Reduction on geometry size
 - Improved out of core texture texture
- Results in better performance, especially for a large scene
- Better performance for out of core



RADEON PRORENDER 2.0 MEMORY

- Full implementation of geometry out of core
 - RPR1.x was relying on HBCC
 - RPR2.0 can render a large scene on any GPU
 - A GPU with larger VRAM can render faster



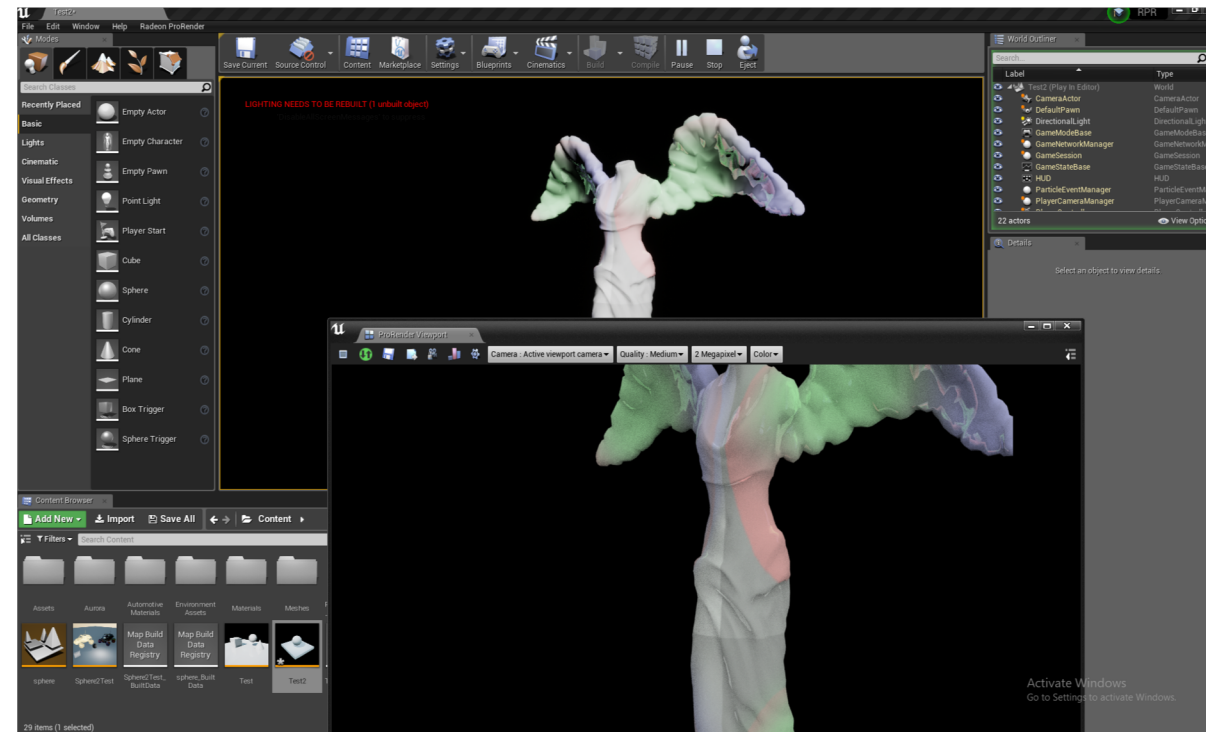
RADEON PRORENDER 2.0 PERFORMANCE

- More optimizations for AMD GPUs
 - RDNA architecture
- Performance diff to RPR1.x is larger for complex scenes
- Rendering algorithm improvement
 - Faster convergence
- Improved performance for CPU + GPU
 - A thread is reserved for GPU driver so we recommend to use a CPU with many core counts (e.g., AMD Ryzen™ Threadripper™ CPUs)

RADEON PRORENDER PLUGIN UPDATE

PUTTING THE “OPEN” IN GPUOPEN

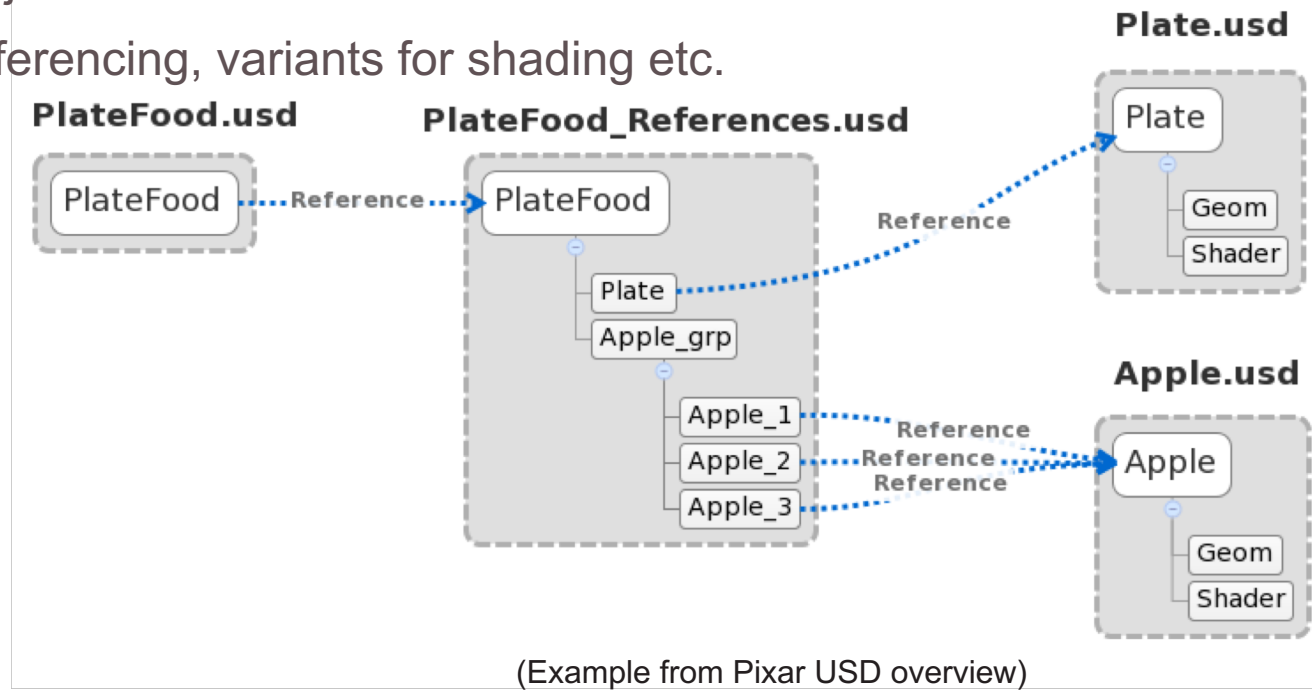
- Unreal Engine Plugin 1.0
 - Translates native UE materials with higher quality rendering.



USD + RPR

USD - FUTURE PROOF FILE INTERCHANGE ACROSS ALL CONTENT CREATION

- Aids in pipelines for game development to movies (and CAD in the future?)
- Developed by Pixar with help of many others
- Support added or coming for all major tools
- Allows Flexible composition and referencing, variants for shading etc.



RPR + USD = HDRPR

- Of course, you will want to visualize these files at any stage... on all platforms
- USD includes Hydra viewport system, we provide hdRPR, a Hydra **Render Delegate**
- Cross platform, includes ProRender and Hybrid modes as well as denoiser
- Also supports Houdini™ Solaris viewport system



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